HORMONES

(Collated by Michelle Wilkinson www.movingnaturally.co.uk)

Hormones are chemical agents which affect the cells of bodily glands, organs and tissues through stimulation or inhibition of their functions.

There are several dozen human hormones divided into two major types. Protein-derived hormones awaken a cell by locking onto the outer membrane receptors. Steroid hormones travel through this outer membrane to attach to the internal receptors. These outer and inner receptors have the capacity to switch genes on or off.

Hormones are released directly into to the blood capillaries.

Once the hormone has taken effect any surplus left in the bloodstream is eliminated either by chemical breakdown in the liver or through kidney excretion.

Hormones take a longer time to react than nerves providing important and long-lasting effects.

In Greek the word hormone means 'to stir up'.

In Zen Shiatsu Theory (ZST) hormones are one of the main sources of impetus responsible for increased energy, growth, sexual maturity and reproduction.

In Traditional Chinese Medicine (TCM) these responsibilities are governed by the Source Ki found at the kidneys. However, kidney health is under the direction of certain pituitary gland hormones such as Vasopressin which control the balance between water excreted from the body as urine and water remaining in the body tissues.

A main function of hormones is homeostasis. Chemical processes are stimulated or inhibited in the cells to maintain the body's stable state.

Another function of hormones is development and as such governs the physical changes that lead to sexual maturity and the bringing of the body to an adult size.

Hormones are required for reproduction. They initiate and maintain sex cell production. In women they stimulate and control the release of the egg cell and prepare the body for possible pregnancy. Post-fertilisation they maintain the womb lining, prepares the mammary glands for milk production and the initiation of birth.

In ZST the kidneys particularly the right one, controls the sexual hormones and as such will influence the condition of the reproductive organs.

In both ZST and TCM the adrenal glands on top of the kidneys supports adaptation to stress. These glands form and secret adrenaline providing appropriate response in what is deemed life threatening situations.

Cortisol is an adrenal steroid hormone which regulates metabolism and immune response while Aldosterone also produced in the adrenal glands regulates blood pressure.

The ovaries in women make most of the oestrogen and progesterone hormone requirements while in men the testes produce the male sex hormone testosterone.

There are two contrasting pancreatic hormones which control the blood glucose levels. Glycogen is released to prevent blood sugar levels dropping while insulin stops blood sugar levels rising.

The thymus gland produces and secretes thymosin a hormone required for T-cell development and production thus supporting the immune system response.

In the thyroid gland the hormone thyroxine increases the body's overall metabolic rate. It plays a vital role in digestion, heart and muscle function, brain development and bone maintenance.

The pituitary gland is directly connected to the hypothalamus part of the brain which is responsible for monitoring the temperature and chemistry of the blood. The hypothalamus makes hormones which affect the pituitary gland and is involved in several feedback mechanisms which keep hormone levels under control. Because the hypothalamus and pituitary work together they create an important link between the endocrine and nervous systems.

The pituitary gland has at least 8 hormones. For example, the TSH is a hormone which stimulates the thyroid gland. Oxytocin is released to contract the womb during childbirth and stimulate the breasts in preparation for lactation. Previously mentioned, Vasopressin known as the antidiuretic hormone, stimulates the kidneys to conserve water and excrete less urine.

The pineal gland produces melatonin a natural hormone involved in the circadian rhythms of the internal 24-hour clock. If there is too much light at night, it may be difficult to sleep.